

**REMARKS**

Claims 1-5 and 11-20 are currently pending in this application. By this response to the non-final Office Action dated March 21, 2008, claims 1-5 and 11-20 are amended, and claims 6-10 are canceled without prejudice. Support for the amendments is found in the specification and claims as filed. No new matter has been introduced. Favorable reconsideration of the application in light of the foregoing amendments and following comments is respectfully solicited.

**I. Receipt of Foreign Priority Documents**

A certified copy of JP Patent App. No. 2001-400519 was submitted on June 28, 2004, along with the request for national phase examination for the instant application. This document is shown as included in the image file wrapper under USPTO Pair. Applicant respectfully requests that acknowledgement of the provided priority documents be made by (*e.g.*, by checking box 12(a)(1) of the Office Action Summary form PTOL-326).

**II. Rejections Under 35 U.S.C. § 101**

On page 2 of the Office Action, claims 1-20 were rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter. Applicant respectfully traverses.

Claims 6-10 are canceled by this Amendment. Accordingly, their rejections are moot.

The Office Action asserts that the claims are “directed towards a method and apparatus that does not result in a concrete or tangible result.” Applicant respectfully submits that a number of patent cases have affirmed the patentability of inventions which manipulate data representational of physical phenomena. Notably, the *State Street Bank* decision (which

established the useful/concrete/tangible test indirectly referred to by the Examiner) cites favorably *In re Alappat* (a method of analyzing electrocardiograph signals) (also cited in MPEP § 2106), *In re Abele* (physical transformation of x-ray data for display on CAT scan) (also cited in MPEP § 2106), and *In re Taner* (a computer-implemented method of seismic exploration), as transformations “sufficiently physical to warrant patent protection.” Neither the input “electromagnetic field observed outside a scalp” nor resulting estimate of “a position of a [brain] current source” are mere abstractions, but instead, much as the subject matter of the cases noted above, are directed to concrete and tangible physical phenomena within the scope of 35 U.S.C. § 101.

Also, the claims are amended to clarify the use of a computer in performing the recited processing and analysis. Claim 1 recites “setting. . . a plurality of computer simulated curved surfaces,” as well as “automatically estimating . . . a current distribution.” This further illustrates that the claims are not directed to abstract, unpatentable subject matter.

Regarding claims 16-20, independent claim 16 recites “[a] computer readable medium storing program code for estimating causing a computer to” perform a particular recited method. MPEP § 2106(I) explains that “a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory.”

In view of the above, Applicant respectfully submits that claims 1-5 and 11-20 are patentable subject matter, and request withdrawal of the rejections under 35 U.S.C. § 101.

III. Rejections Under 35 U.S.C. § 103(a)

On page 2 of the Office Action, claims 1-20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent App. Pub. No. 2003/0093005 (Tucker) in view of Baillet (entitled “A Bayesian Approach to Introducing Anatomic-Functional Priors in the EEG/MEG Inverse Problem”). Applicant respectfully traverses.

Claims 6-10 are canceled by this Amendment. Accordingly, their rejections are moot.

A. The Office Action did not establish a valid *prima facie* case of obviousness

Under 35 U.S.C. § 103(a), a determination of obvious is made based on “the subject matter **as a whole**.” Accordingly, a valid *prima facie* case of obviousness, at a minimum, requires consideration of **each and every limitation** in a claim against the prior art. *See* MPEP § 2143.03 (entitled “All Claim Limitations Must Be Considered”) (explaining that “All words in a claim must be considered in judging the patentability of that claim against the prior art”). The Office Action did not address all of limitations recited in claims 1, 2, 11, 12, 16, and 17 (either as originally filed or amended), and has not addressed *any* of the limitations recited in claims 3-5, 13-15, and 18-20 (either as originally filed or amended), and therefore has not established a *prima facie* case of obviousness demonstrating unpatentability of the claims.

Claims 1, 11, and 16 (as originally filed and as amended) recite “setting lattice points on each of said . . . curved surfaces,” which was not addressed by the Office Action. Claims 2, 12, and 17 (as originally filed and as amended) recite “identifying a . . . curved surface of which corresponding said posterior probability attains the maximum, among said . . . curved surfaces,” which was not addressed by the Office Action. Further, as noted above, none of the limitations recited in claims 3-5 (as originally filed and as amended) were addressed by the Office Action.

Accordingly, none of the claims have received a valid rejection under 35 U.S.C. § 103(a). Thus, Applicant respectfully requests withdrawal of the rejections under 35 U.S.C. § 103(a).

B. Tucker is not valid prior art

The instant application has a priority date of December 28, 2001, via JP Patent App. Pub. No. 2001-400519. Included with this Amendment is a certified English translation of the priority application, thereby perfecting the priority date of December 28, 2001. *See* 37 CFR 1.55(a)(4)(i)(B); MPEP 201.15.

Portions of Tucker relied upon by the Office Action only have an effective date of August 16, 2002. Tucker is a continuation-in-part application of U.S. Patent App. No. 10/001,541 (currently issued as U.S. Patent No. 6,594,521). FIG. 3, ¶ [0036], and ¶ [0060], which are relied upon in rejecting the claims, were not disclosed in U.S. Patent App. No. 10/001,541. Thus, at least these portions of Tucker are effective as of Tucker's August 16, 2002 filing date. The instant application has priority over at least these portions of Tucker, and thus Tucker is not valid prior art with respect to this subject matter. Thus, even with respect to the limitations which are addressed by the Office Action, Tucker is unable to support the asserted claims of obviousness made by the Office Action.

C. Baillet does not disclose or suggest a number of claimed limitations

The Office Action relies on Baillet to bridge the gap between Tucker and the claimed subject matter. However, there are a number of claimed limitations Baillet does not disclose or suggest, so as to cure the shortcomings of Tucker. For example, Baillet does not disclose or suggest, *inter alia*:

- setting, in the brain, a plurality of computer simulated curved surfaces having depths from brain surface different from each other and shapes not intersecting with each other, and setting lattice points on each of said computer simulated curved surfaces (claim 1)

- automatically estimating, on each of said computer simulated curved surfaces, a current distribution for recovering said observed electromagnetic field (claim 1)
- identifying a computer simulated curved surface of which corresponding said posterior probability attains the maximum, among said computer simulated curved surfaces (claim 2)
- setting, when said current distribution is estimated in accordance with Bayesian estimation, a hierarchical prior distribution in said Bayesian estimation using observation data obtained by other observation method independent of said observation of electromagnetic field for said estimation of the current source (claim 5)

Specifically, with respect to claim 5, pages 55-56 of the instant application discuss how the prior art, exemplified by Dale, taught that “activity information of fMRI or the like is directly applied to the variance information of the current” (page 55, lines 20-21). Claim 5 is distinguished from such prior art approaches in that “the information obtained by fMRI or the like is not directly designated as the variance information of current but designated at the level of meta parameters of **hierarchical prior distribution**” (page 55, line 27 to page 56, line 1). Page 56, lines 15-22 further describes this distinction. Baillet, like Dale, is distinguished from claim 5 in this regard.

Likewise, Baillet does not disclose or suggest similar limitations recited in claims 11, 12, 15, 16, 17, and 20. Accordingly, the proposed combination of Tucker and Baillet does not make the claimed subject matter obvious.

Thus, for at least the reasons discussed above, the Office Action has not established a valid *prima facie* case of obviousness against the claims, and the claims are nonobvious in view of the cited art. Accordingly, Applicant respectfully requests withdrawal of the rejections under 35 U.S.C. § 103(a).

IV. Conclusion

Accordingly, it is urged that the application, as now amended, is in condition for allowance, an indication of which is respectfully solicited. If there are any outstanding issues that might be resolved by an interview or an Examiner's amendment, Examiner is requested to call Applicant's attorney at the telephone number shown below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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